REMARKS/ARGUMENTS

The Examiner is thanked for the final Office Action mailed September 10, 2009. The status of the application is as follows:

- Claims 1-21 are pending and claim 21 has been added;

- Claims 1-3, 5-8, 10-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zlokolica et al. (Video denoising using multiple class averaging with multiresolution, University of Ghent, Belgium) in view of Eck et al. (US 2006/0072845); and

- Claims 4, 9 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zlokolica et al. in view of Eck et al. and in further view of Brailean et al. (Noise Reduction: Filters for Dynamic Image Sequence: A Review).

The objections and rejections are discussed below.

The Rejection of Claims 1-3, 5-8, 10-19 under 35 U.S.C. 103(a)

Claims 1-3, 5-8, 10-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zlokolica et al. in view of Eck et al. This rejection should be withdrawn because the combination of Zlokolica et al. and Eck et al. does not establish a *prima facie* case of obvious with respect to the subject claims.

> The rationale to support a conclusion that the claim would have been obvious is that all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed. *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398 (2007). MPEP §2143.

> "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). MPEP §706.02(j).

Independent **claim 1** recites an image processing system for reduction of noise and enhancement of edges in images of a sequence. The system comprises, among other things, a

filter that temporally filters one or more of the slices for ***differently filtering the slices according to the content***, where ***one or more high frequency slices are filtered at a greater rate than one or more low frequency slices***. The combination of Zlokolica et al. and Eck et al. fail to teach or suggest the above-emphasized claim elements.

The Office concedes that Zlokolica et al. fails to teach differently filtering slices according to content, where one or more high frequency slices are filtered at a greater rate than one or more low frequency slices but asserts in the Response to Arguments in the current Office Action that it is generally known that the spatially varying image content is found in the lower frequency subband and noise is typically found in the higher frequency subband. The Office further asserts that a typical approach is to filter only the high frequency subband prior to signal recombination. The Office cites to Eck et al. at paragraphs [0013] and [0045-0047] as teaching these general assertions as well as making up for the deficiencies of Zlokolica et al. However, the filtering method disclosed in Eck et al. does not include filtering high frequency slices at a greater rate than low frequency slices as recited in claim 1.

Eck et al. discloses a multi-gradient filtering method where first Gaussian-pyramid and Laplacian-pyramid filters are applied in some spatial frequency ranges of an input image, with an output image generated from the input image (see Abstract and paragraph [0013]). The Gaussian pyramid representations are generated by using a reduction operation, the reduction operation defined as *low-pass filtering or smoothing* and a subsequent resolution reduction (see paragraph [0045]). The Laplacian pyramid representations are generated by calculating the difference between the input image and a copy of the input image after both images are passed through the reduction operation described above and an expansion operation, the expansion operation defined as increasing the resolution by a factor of 2 and a subsequent *low-pass filtering or interpolation* (see paragraph [0045]). The Gaussian pyramid representations contain a low pass fraction or a low frequency slice of the resolution stage and the Laplacian pyramid representations contain the low pass fraction and a corresponding high pass fraction or high frequency slice of the resolution stage (see paragraph [0045]). However, neither set of pyramid representations are generated by filtering the high pass fraction at a greater rate than the low pass fraction (see generally paragraphs [0045-0047]).

Furthermore, the subsequent gradient-filtering coefficients are calculated at each stage directly *from the low-pass filtered Laplacian pyramid representations* (see paragraphs [0046] and [0095]). Eck et al. is in fact silent regarding filtering the high pass fraction or high frequency slice during the pyramidal decompositions and during the gradient filtering. As such, the combination of Zlokolica et al. and Eck et al. fail to teach or suggest each and every element of claim 1. Accordingly, the rejection of claim 1 should be withdrawn.

Independent **claims 7 and 8** recite aspects similar to those recited in claim 1. As such, the arguments made previously with respect to claim 1 apply *mutatis mutandis* to claims 7 and 8. Accordingly, the rejection of claims 7 and 8 should be withdrawn.

Claims 2-3, 5-6 and 10-19 all depend from claims 1 and 8, respectively, and these claims are allowable at least by virtue of their dependencies. Hence, the rejection of these claims should be withdrawn.

Applicants further include a Declaration in compliance with 37 C.F.R. 1.132 traversing the rejection of claims 1-3, 5-8 and 10-19.

The Rejection of Claims 4, 9 and 20 under 35 U.S.C. 103(a)

Claims 4, 9 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zlokolica et al. in view of Eck et al. and further in view of Brailean et al. This rejection should be withdrawn because claims 4, 9 and 20 depend from claims 1, 7 and 8, respectively, and are allowable at least by virtue of their dependencies. Applicants further include a Declaration in compliance with 37 C.F.R. 1.132 traversing the rejection of claims 4, 9 and 20.

New Claim 21

Newly added claim 21 emphasizes various aspects. No new matter has been added. The prior art of record fails to teach or suggest the elements of claim 21. In particular, Zlokolica et al., Eck et al. and Brailean et al. are all silent regarding one or more temporal filters adapting to a temporal component of a slice for filtering the one or more high frequency slices at a greater rate than the one or more low frequency slices. Entry and allowance of claim 21 is respectfully requested.

Conclusion

In view of the foregoing, it is submitted that the claims distinguish patentably and non-obviously over the prior art of record. An early indication of allowability is earnestly solicited.

Respectfully submitted,

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